

# Dermal Toxicology Specialty Section

## Executive Council

### President

Nancy Monteiro-Riviere, Ph.D.  
North Carolina State University  
nancy\_monteiro@ncsu.edu

### Vice President

Robert L. Bronaugh, Ph.D.  
U.S. FDA  
robert.bronaugh@cfsan.fda.gov

### Vice President Elect

James N. McDougal, Ph.D.  
Wright State University  
james.mcdougal@wright.edu

### Secretary-Treasurer

Cindy A. Ryan  
Procter & Gamble  
ryan.ca@pg.com

### Councilors

#### Senior Councilor

Carol S. Auletta  
Huntingdon Life Sciences  
aulettac@princeton.huntingdon.com

#### Junior Councilor

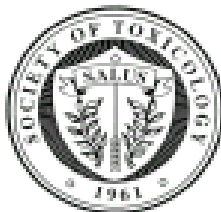
Debra Laskin, Ph.D.  
Rutgers University  
Laskin@eohsi.rutgers.edu

#### Past President

Ian Kimber, Ph.D.  
Syngenta  
ian.kimber@syngenta.com

The *Dermal Toxicology Specialty Section* newsletter is published 2 times/year (March, and September) in electronic format. If you would like to share a book review, meeting report, web site, or any other item of general interest to the specialty section, please send it to the editor (Vice President Elect) by the beginning of the month prior to the listed publication dates. We also welcome any comments or suggestions pertaining to overall content or format.

Jim McDougal, Editor



## Specialty Section Meeting at SOT

Come meet the new members and new officers and get reacquainted with friends you may not have seen for a year! Our specialty section meeting will be held 6:00 to 7:30 pm on Wednesday, March 9<sup>th</sup> in room 227 of the Convention Center.

## Meeting Program

The Specialty Sections play a critical role in the planning of the Annual Meeting, especially in regards to the identification and development of continuing education courses and scientific sessions. Please think about and propose symposia, workshops, roundtables and continuing education courses related to your interests in dermal toxicology. As in years past, your participation is vital to the success of the Annual Meeting, as well as many other major activities of the Society.

## DTSS Website

Our DTSS website contains lots of valuable information including our bylaws, current list of members and officers. In addition, the archives of the newsletters are available. Check it out:

<http://www.toxicology.org/MemberServices/SpecSection/dermal/presco mer.htm>

We are always looking for information to share with members, such as meetings, announcements, job openings, postdoctoral positions, etc. that can be posted on the website or included in the newsletter. For more information contact the DTSS Vice-President Elect who is co-chair of the communications committee.

## Honors and Awards

We had 6 student submissions for our Travel Award this year, all from graduate students. Since we had planned to give two awards, one to a graduate student and one to a post-doctoral student, we decided to present two graduate student awards. Our first- and second-place winners have been selected and will be announced at our annual meeting, where the awards will be presented. Taylor and Francis will also present awards of \$500 plus a free journal subscription to *Cutaneous and Ocular Toxicology*. So.... plan to attend for the announcement and presentations. See you there!

## Skin Conferences

“Occupational And Environmental Exposures of Skin To Chemicals – 2005” will be held in Karolinska Institute in Stockholm, Sweden, 12 – 15 June 2005. This is the second meeting in a series to foster multidisciplinary discussions on the prevention of harmful effects caused by exposure of skin to chemicals. See the website for details:

<http://www.cdc.gov/niosh/topics/skin/OEESC2/index.html>

A Gordon Conference on "Barrier Function of Mammalian Skin" will be held August 7 – 12, 2005 at Mount Holyoke College in South Hadley MA. This meeting has a very informal format and is excellent for getting to know leaders in the field and fellow scientists. For more information and applications for attendance see the website:

<http://www.grc.uri.edu/programs/2005/barrier.htm>

## Cutaneous and Ocular Toxicology Journal

As you attend the annual meeting and think about submitting your results to journals, consider submitting to Cutaneous and Ocular Toxicology. As editor of the journal, I would like to invite you to submit your work to me. Cutaneous and Ocular Toxicology is great place for papers related to the skin and the effects of agents on the skin. Check our editorial board and you will notice that it is well supported by members of the Dermal Specialty Section. Taylor and Francis has purchased Cutaneous and Ocular Toxicology and it is now listed in Medline. As a result of the journal's new home, Taylor and Francis has agreed to recognize the best dermatological paper in the journal each year. The winner of the best paper will be honored at the dermal specialty section annual meeting with a certificate and a one-year subscription to the journal. As the editor of the journal, I look forward to the New Orleans meeting, when the winner will be announced.

We look forward to receiving your manuscripts. Please submit your manuscripts to the address below electronically.

A. Wallace Hayes, PhD, DABT, FATS, FIBiol, FACFE  
Harvard School of Public Health  
Editor, Cutaneous and Ocular Toxicology  
[awallacehayes@comcast.net](mailto:awallacehayes@comcast.net)  
(978) 749-3085

## SOT meeting information

Listed below are dates and locations of meetings and scientific sessions that may be of interest to DTSS members. The sessions included are ones that are sponsored by our specialty section or include multiple presentations relevant to dermal toxicology.

**Poster Session: Chemical & Biological Weapons.** Tuesday March 8, 2005; 9:30 – 12:30; Exhibit Hall.

**Poster Session: Hypersensitivity II.** Tuesday March 8, 2005; 1:30 – 4:30; Exhibit Hall.

**Roundtable Session: Conducting a Comprehensive Toxicological and Safety Evaluation of Nanomaterials: Current Challenges and Data Needs.** Wednesday March 9, 2005; 12:00 – 1:00; Room R08-9.

**Workshop Session: Skin Model Selection for safety assessment of Topical Drug Products: Regulatory and Industry Perspectives.** Wednesday March 9, 2005; 1:30 – 4:30; Room R06-7.

**Poster Session: Mechanisms of Carcinogenesis.** Wednesday March 9; 1:30 – 4:30; Exhibit Hall.

**DTSS Specialty Section Meeting and Reception.** Wednesday March 9, 2005; 6:00 – 7:30 pm; room 227 Convention Center.

**Poster Session: Dermal Toxicology.** Thursday March 10, 2005; 8:30 – 11:30; Ballrooms A & B.

## DTSS member publications in 2004

Once a year we feature a listing of peer-reviewed publications by specialty section members (with skin as a keyword) that are available on PubMed. While the editors do their very best to find relevant publications based on the current membership list, it is likely that mistakes will occur, and we apologize if we have left any publications out.

Alberts, D., Ranger-Moore, J., Einspahr, J., Saboda, K., Bozzo, P., Liu, Y., Xu, X. C., Lotan, R.,

Warneke, J., Salasche, S., Stratton, S., Levine, N., Goldman, R., Islas, M., Duckett, L., Thompson, D., and Bartels, P. (2004). Safety and efficacy of dose-intensive oral vitamin A in subjects with sun-damaged skin. *Clin.Cancer Res.* **10**, 1875-1880.

**Api, A. M.** (2004). Evaluation of the dermal subchronic toxicity of phenoxyethyl isobutyrate in the rat. *Food Chem.Toxicol.* **42**, 307-311.

Arbogast, J. W., Fendler, E. J., Hammond, B. S., Cartner, T. J., Dolan, M. D., Ali, Y., and **Maibach, H. I.** (2004). Effectiveness of a hand care regimen with moisturizer in manufacturing facilities where workers are prone to occupational irritant dermatitis. *Dermatitis* **15**, 10-17.

**Auletta, C. S.** (2004). Current in vivo assays for cutaneous toxicity: local and systemic toxicity testing. *Basic Clin.Pharmacol.Toxicol.* **95**, 201-208.

**Basketter, D. A.,** Marriott, M., Gilmour, N. J., and White, I. R. (2004). Strong irritants masquerading as skin allergens: the case of benzalkonium chloride. *Contact Dermatitis* **50**, 213-217.

**Basketter, D. A.,** York, M., McFadden, J. P., and **Robinson, M. K.** (2004c). Determination of skin irritation potential in the human 4-h patch test. *Contact Dermatitis* **51**, 1-4.

**Baynes, R. E.** (2004). In vitro dermal disposition of abamectin (avermectin B(1)) in livestock. *Res.Vet.Sci.* **76**, 235-242.

**Baynes, R. E. and Riviere, J. E.** (2004). Mixture additives inhibit the dermal permeation of the fatty acid, ricinoleic acid. *Toxicol.Lett.* **147**, 15-26.

Bazzi, H., Kljuic, A., Christiano, A. M., Christiano, A. M., and **Panteleyev, A. A.** (2004). Intragenic deletion in the *Desmoglein 4* gene underlies the skin phenotype in the Iffa Credo "hairless" rat. *Differentiation* **72**, 450-464.

- Betts, C. J., Flanagan, B. F., Caddick, H. T., **Dearman, R. J.** and **Kimber, I.** (2004). Intradermal exposure of BALB/c strain mice to peanut protein elicits a type 2 cytokine response. *Food and Chemical Toxicology* **42**, 1589-1599.
- Bhushan, M., **Cumberbatch, M.**, **Dearman, R. J.**, **Kimber, I.**, and Griffiths, C. E. (2004). Exogenous interleukin-1beta restores impaired Langerhans cell migration in aged skin. *Br.J Dermatol* **150**, 1217-1218.
- Brennan, D., Hu, Y., Kljuic, A., Choi, Y., Joubeh, S., Bashkin, M., Wahl, J., Fertala, A., Pulkkinen, L., Uitto, J., Christiano, A. M., **Panteleyev, A.**, and Mahoney, M. G. (2004). Differential structural properties and expression patterns suggest functional significance for multiple mouse desmoglein 1 isoforms. *Differentiation* **72**, 434-449.
- Casbohm, S. L., Rogers, J. V., Stonerock, M. K., Martin, J. L., Ricketts-Kaminsky, K. M., **Babin, M. C.**, **Casillas, R. P.**, and **Sabourin, C. L.** (2004). Localization of substance P gene expression for evaluating protective countermeasures against sulfur mustard. *Toxicology* **204**, 229-239.
- Chao, Y. C. and **Nylander-French, L. A.** (2004). Determination of keratin protein in a tape-stripped skin sample from jet fuel exposed skin. *Ann.Occup.Hyg.* **48**, 65-73.
- Cormier, E. M., **Sarlo, K.**, Scott, L. A., MacKenzie, D. P., Payne, N. S., Carr, G. J., Smith, L. A., Cua-Lim, F., Bunag, F. C., and Vasunia, K. (2004). Lack of type 1 sensitization to laundry detergent enzymes among consumers in the Philippines: results of a 2-year study in atopic subjects. *Ann.Allergy Asthma Immunol.* **92**, 549-557.
- Cserhalmi-Friedman, P. B., **Panteleyev, A. A.**, and Christiano, A. M. (2004). Recapitulation of the hairless mouse phenotype using catalytic oligonucleotides: implications for permanent hair removal. *Exp.Dermatol* **13**, 155-162.
- Dearman, R. J.**, Bhushan, M., Cumberbatch, M., **Kimber, I.**, and Griffiths, C. E. (2004). Measurement of cytokine expression and Langerhans cell migration in human skin following suction blister formation. *Exp.Dermatol* **13**, 452-460.
- Dillman, J. F., III, McGary, K. L., and **Schlager, J. J.** (2004). An inhibitor of p38 MAP kinase downregulates cytokine release induced by sulfur mustard exposure in human epidermal keratinocytes. *Toxicol.In Vitro* **18**, 593-599.
- Docherty, J. J., **Smith, J. S.**, Fu, M. M., Stoner, T., and Booth, T. (2004). Effect of topically applied resveratrol on cutaneous herpes simplex virus infections in hairless mice. *Antiviral Res.* **61**, 19-26.
- Elahi, E. N., Wright, Z., Hinselwood, D., Hotchkiss, S. A., **Basketter, D. A.**, and Pease, C. K. (2004). Protein binding and metabolism influence the relative skin sensitization potential of cinnamic compounds. *Chem.Res.Toxicol.* **17**, 301-310.
- Farage, M. and **Maibach, H. I.** (2004). The vulvar epithelium differs from the skin: implications for cutaneous testing to address topical vulvar exposures. *Contact Dermatitis* **51**, 201-209.
- Gerberick, G. F.**, **Ryan, C. A.**, Kern, P. S., **Dearman, R. J.**, **Kimber, I.**, Patlewicz, G. Y., and **Basketter, D. A.** (2004). A chemical dataset for evaluation of alternative approaches to skin-sensitization testing. *Contact Dermatitis* **50**, 274-288.
- Gerberick, G. F.**, Vassallo, J. D., Bailey, R. E., Chaney, J. G., Morrall, S. W., and Lepoittevin, J. P. (2004). Development of a peptide reactivity assay for screening contact allergens. *Toxicol.Sci.* **81**, 332-343.
- Gesler, W., Smith, R., DeDecker, P. G., **Bernstam, L.**, Snyder, R., Freed, P. S., and Kantrowitz, A. (2004). Updated feasibility trial experience with the Viaderm percutaneous access device. *ASAIO J* **50**, 349-353.
- Gildea, L. A. **Ryan, C. A.** Hulette, B. C. **Dearman, R. J.**, **Kimber, I.** and **Gerberick, G. F.** (2004). Transcript profiling of T lymphocytes and dendritic cells in a co-culture system using anti-CD3 and allergen activation. *Journal of Toxicology: Cutaneous and Ocular Toxicology*, **23**(4):277-292.
- Heck, D. E.**, Gerecke, D. R., Vetrano, A. M., and **Laskin, J. D.** (2004). Solar ultraviolet radiation as a trigger of cell signal transduction. *Toxicol.Appl.Pharmacol.* **195**, 288-297.
- Hostynek, J. J. and **Maibach, H. I.** (2004). Copper hypersensitivity: dermatologic aspects. *Dermatol Ther.* **17**, 328-333.
- Hostynek, J. J. and **Maibach, H. I.** (2004). Thresholds of elicitation depend on induction conditions. Could low level exposure induce sub-clinical allergic states that are only elicited under the severe conditions of clinical diagnosis? *Food Chem.Toxicol.* **42**, 1859-1865.
- Howell, M. D.**, Jones, J. F., Kisich, K. O., Streib, J. E., Gallo, R. L., and Leung, D. Y. (2004). Selective killing of vaccinia virus by LL-37: implications for eczema vaccinatum. *J Immunol.* **172**, 1763-1767.
- Kim, D. J.**, Akiyama, T. E., Harman, F. S., Burns, A. M., Shan, W., Ward, J. M., Kennett, M. J., Gonzalez, F. J., and Peters, J. M. (2004). Peroxisome proliferator-activated receptor beta (delta)-dependent regulation of ubiquitin C expression contributes to attenuation of skin carcinogenesis. *J Biol.Chem.* **279**, 23719-23727.
- Kimber, I.**, **Cumberbatch, M.**, Betts, C. J., and **Dearman, R. J.** (2004). Dendritic cells and skin sensitisation hazard assessment. *Toxicol.In Vitro* **18**, 195-202.
- Knaak, J. B., **Dary, C. C.**, Power, F., Thompson, C. B., and Blancato, J. N. (2004). Physicochemical and biological data for the development of predictive organophosphorus pesticide QSARs and PBPK/PD models for human risk assessment. *Crit Rev.Toxicol.* **34**, 143-207.
- Kohen, R., Oron, M., Zelkowitz, A., Kanevsky, E., Farfour, S., and **Wormser, U.** (2004). Low

molecular weight antioxidants released from the skin's epidermal layers: an age dependent phenomenon in the rat. *Exp.Gerontol.* **39**, 67-72.

**Kraeling, M. E., Yourick, J. J., and Bronaugh, R. L.** (2004). In vitro human skin penetration of diethanolamine. *Food Chem.Toxicol.* **42**, 1553-1561.

Leopold, C. S. and **Maibach, H. I.** (2004). Effect of cutaneously applied nonionic surfactants and local anesthetic bases on thermal sensations. *Pharmazie* **59**, 50-54.

Leung, D. Y., Boguniewicz, M., **Howell, M. D.**, Nomura, I., and Hamid, Q. A. (2004). New insights into atopic dermatitis. *J Clin.Invest* **113**, 651-657.

Li, S. A., Watanabe, M., **Yamada, H.**, Nagai, A., Kinuta, M., and Takei, K. (2004). Immunohistochemical localization of Klotho protein in brain, kidney, and reproductive organs of mice. *Cell Struct.Funct.* **29**, 91-99.

Lin, J. Y., Lin, F. H., Burch, J. A., Selim, M. A., **Monteiro-Riviere, N. A.**, Grichnik, J. M., and Pinnell, S. R. (2004). Alpha-lipoic acid is ineffective as a topical antioxidant for photoprotection of skin. *J Invest Dermatol* **123**, 996-998.

Lockley, D. J., Howes, D., and **Williams, F. M.** (2004). Cutaneous metabolism of glycol ethers. *Arch.Toxicol.* (epub ahead of print)

Lockley, D. J., Howes, D., and **Williams, F. M.** (2004). Percutaneous penetration and metabolism of 2-butoxyethanol. *Arch.Toxicol.* **78**, 617-628.

Loffler, H., Dreher, F., and **Maibach, H. I.** (2004). Stratum corneum adhesive tape stripping: influence of anatomical site, application pressure, duration and removal. *Br.J Dermatol* **151**, 746-752.

Magee, B. H., Clough, S. R., and **Roy, T. A.** (2004). An in vitro evaluation of human dermal exposure to benzene sulfonate, m-benzene disulfonate and p-phenol

sulfonate. *Bull.Enviro.Contam Toxicol.* **73**, 235-241.

**McDougal, J. N.** and Rogers, J. V. (2004). Local and systemic toxicity of JP-8 from cutaneous exposures. *Toxicol.Lett.* **149**, 301-308.

Minagawa, R., Okano, S., Tomita, Y., Kishihara, K., **Yamada, H.**, Nomoto, K., Shimada, M., Maehara, Y., Sugimachi, K., Yoshikai, Y., and Nomoto, K. (2004). The critical role of Fas-Fas ligand interaction in donor-specific transfusion-induced tolerance to H-Y antigen. *Transplantation* **78**, 799-806.

Miyoshi, S., Watanabe, H., Kawase, T., **Yamada, H.**, and Shinoda, S. (2004). Generation of active fragments from human zymogens in the bradykinin-generating cascade by extracellular proteases from *Vibrio vulnificus* and *V. parahaemolyticus*. *Toxicon* **44**, 887-893.

Modjtahedi, B. S., Modjtahedi, S. P., and **Maibach, H. I.** (2004). The sex of the individual as a factor in allergic contact dermatitis. *Contact Dermatitis* **50**, 53-59.

Muhammad F., **Baynes R.E.**, **Monteiro-Riviere N.A.**, Xia XR, **Riviere J.E.**: (2004). Dose related absorption of JP-8 jet fuel hydrocarbons through porcine skin with quantitative structure permeability relationship analysis. *Toxicology Mechanisms and Methods* **14**: 159-166.

**Monteiro-Riviere, N. A.**, Inman, A. O., and **Riviere, J. E.** (2004). Skin toxicity of jet fuels: ultrastructural studies and the effects of substance P. *Toxicol.Appl.Pharmacol.* **195**, 339-347.

Mustacich, D., Wagner, A., **Williams, R.**, Bair, W., Barbercheck, L., Stratton, S. P., Bhattacharyya, A. K., and Powis, G. (2004). Increased skin carcinogenesis in a keratinocyte directed thioredoxin-1 transgenic mouse. *Carcinogenesis* **25**, 1983-1989.

Nelson, H. S., Kolehmainen, C., Lahr, J., **Murphy, J.**, and Buchmeier, A. (2004). A comparison of multiheaded devices

for allergy skin testing. *J Allergy Clin.Immunol.* **113**, 1218-1219.

Patlewicz, G. Y., **Basketter, D. A.**, Pease, C. K., Wilson, K., Wright, Z. M., Roberts, D. W., Bernard, G., Arnau, E. G., and Lepoittevin, J. P. (2004). Further evaluation of quantitative structure-activity relationship models for the prediction of the skin sensitization potency of selected fragrance allergens. *Contact Dermatitis* **50**, 91-97.

Patterson, R., Vega, L., Trouba, K., Bortner, C., and **Germolec, D.** (2004). Arsenic-induced alterations in the contact hypersensitivity response in Balb/c mice. *Toxicol.Appl.Pharmacol.* **198**, 434-443.

Purdon, C. H., Azzi, C. G., Zhang, J., Smith, E. W., and **Maibach, H. I.** (2004). Penetration enhancement of transdermal delivery--current permutations and limitations. *Crit Rev.Ther.Drug Carrier Syst.* **21**, 97-132.

Rippke, F., Schreiner, V., Doering, T., and **Maibach, H. I.** (2004). Stratum corneum pH in atopic dermatitis: impact on skin barrier function and colonization with *Staphylococcus Aureus*. *Am.J Clin.Dermatol* **5**, 217-223.

Rogers, J. V., Choi, Y. W., Kiser, R. C., Babin, M. C., **Casillas, R. P.**, **Schlager, J. J.**, and **Sabourin, C. L.** (2004). Microarray analysis of gene expression in murine skin exposed to sulfur mustard. *J Biochem.Mol.Toxicol.* **18**, 289-299.

**Ryan, C. A.**, Gildea, L. A., Hulette, B. C., **Dearman, R. J.**, **Kimber, I.**, and **Gerberick, G. F.** (2004). Gene expression changes in peripheral blood-derived dendritic cells following exposure to a contact allergen. *Toxicol.Lett.* **150**, 301-316.

**Ryan, C. A.**, Hulette, B. C., Gildea, L. A., **Dearman, R. J.**, **Kimber, I.** and **Gerberick, G. F.** (2004) Examination of phenotypic changes in peripheral blood-derived dendritic cells following exposure to a contact allergen: Cell surface marker and gene expression. *Journal of Toxicology: Cutaneous*

and Ocular Toxicology, 23(2):91-104

**Sabourin, C. L.**, Rogers, J. V., Choi, Y. W., Kiser, R. C., **Casillas, R. P.**, **Babin, M. C.**, and **Schlager, J. J.** (2004). Time- and dose-dependent analysis of gene expression using microarrays in sulfur mustard-exposed mice. *J Biochem.Mol.Toxicol.* **18**, 300-312.

Shaw, D. W., Eichenfield, L. F., Shainhouse, T., and **Maibach, H. I.** (2004). Allergic contact dermatitis from tacrolimus. *J Am.Acad.Dermatol* **50**, 962-965.

**Shvedova, A. A.**, Kisin, E. R., Murray, A., Kommineni, C., Vallyathan, V., and Castranova, V. (2004). Pro/antioxidant status in murine skin following topical exposure to cumene hydroperoxide throughout the ontogeny of skin cancer. *Biochemistry (Mosc.)* **69**, 23-31.

Smith, H. R., Orchard, G. E., Calonje, E., **Basketter, D. A.**, and McFadden, J. P. (2004). Irritant threshold and histological response of epidermis to irritant application. *Contact Dermatitis* **51**, 227-230.

Smith, H. R., Rowson, M., **Basketter, D. A.**, and McFadden, J. P. (2004b). Intra-individual variation of irritant threshold and relationship to transepidermal water loss measurement of skin irritation. *Contact Dermatitis* **51**, 26-29.

Strid, J., Hourihane, J., **Kimber, I.**, Callard, R., and Strobel, S. (2004). Disruption of the stratum corneum allows potent epicutaneous immunization with protein antigens resulting in a dominant systemic Th2 response. *Eur.J Immunol.* **34**, 2100-2109.

Takeyoshi, M., Noda, S., Yamazaki, S., Kakishima, H., Yamasaki, K., and **Kimber, I.** (2004). Assessment of the skin sensitization potency of eugenol and its dimers using a non-radioisotopic modification of the local lymph node assay. *J Appl.Toxicol.* **24**, 77-81.

Tanaka, S., Royds, C., Buckley, D., **Basketter, D. A.**, Goossens, A., Bruze, M., Svedman, C., Menne, T., Johansen, J. D., White, I. R., and

McFadden, J. P. (2004). Contact allergy to isoeugenol and its derivatives: problems with allergen substitution. *Contact Dermatitis* **51**, 288-291.

Trouba, K. J. and **Germolec, D. R.** (2004). Micromolar concentrations of sodium arsenite induce cyclooxygenase-2 expression and stimulate p42/44 mitogen-activated protein kinase phosphorylation in normal human epidermal keratinocytes. *Toxicol.Sci.* **79**, 248-257.

Udomkunsri, P., Noga, E. J., and **Monteiro-Riviere, N. A.** (2004). Pathogenesis of acute ulceration response (AUR) in hybrid striped bass. *Dis.Aquat.Organ* **61**, 199-213.

Uyttendaele, H., **Panteleyev, A. A.**, de Berker, D., Tobin, D. T., and Christiano, A. M. (2004). Activation of Notch1 in the hair follicle leads to cell-fate switch and Mohawk alopecia. *Differentiation* **72**, 396-409.

van de Sandt, J. J., van Burgsteden, J. A., Cage, S., Carmichael, P. L., Dick, I., Kenyon, S., Korinth, G., Larese, F., Limasset, J. C., Maas, W. J., Montomoli, L., Nielsen, J. B., Payan, J. P., Robinson, E., Sartorelli, P., Schaller, K. H., Wilkinson, S. C., and **Williams, F. M.** (2004). In vitro predictions of skin absorption of caffeine, testosterone, and benzoic acid: a multi-centre comparison study. *Regul.Toxicol.Pharmacol.* **39**, 271-281.

Welss, T., **Basketter, D. A.**, and Schroder, K. R. (2004). In vitro skin irritation: facts and future. State of the art review of mechanisms and models. *Toxicol.In Vitro* **18**, 231-243.

Wester, R. C., Hui, X., Barbadillo, S., **Maibach, H. I.**, Lowney, Y. W., Schoof, R. A., Holm, S. E., and Ruby, M. V. (2004). In vivo percutaneous absorption of arsenic from water and CCA-treated wood residue. *Toxicol.Sci.* **79**, 287-295.

**Wormser, U.**, Langenbach, R., Peddada, S., Sintov, A., Brodsky, B., and Nyska, A. (2004). Reduced sulfur mustard-induced skin toxicity in cyclooxygenase-2 knockout and

celecoxib-treated mice. *Toxicol.Appl.Pharmacol.* **200**, 40-47.

**Wormser, U.**, Sintov, A., Brodsky, B., Casillas, R. P., and Nyska, A. (2004). Protective effect of topical iodine containing anti-inflammatory drugs against sulfur mustard-induced skin lesions. *Arch.Toxicol.* **78**, 156-166.

Xia X.R., **Baynes R.E.**, **Monteiro-Riviere N.A.**, **Riviere J.E.**: (2004). A compartment model for the membrane-coated fiber (MCF) technique used for determining the absorption parameters of chemicals through lipophilic membranes. *Pharmaceutical Research* **21**: 1345-1352.

Xia X.R., **Baynes R.E.**, **Monteiro-Riviere N.A.**, **Riviere J.E.**: (2004). Characterization of polyacrylate membrane-coated fibers used in chemical absorption studies with programmed thermal treatment and FT-IR microscopy. *Analytical Chemistry* **76**: 4245-4250.

Xie, Y., Trouba, K. J., Liu, J., Waalkes, M. P., and **Germolec, D. R.** (2004). Biokinetics and subchronic toxic effects of oral arsenite, arsenate, monomethylarsonic acid, and dimethylarsinic acid in v-Ha-ras transgenic (Tg.AC) mice. *Environ.Health Perspect.* **112**, 1255-1263.

**Yamada, H.**, Igarashi, Y., Takasu, Y., Saito, H., and Tsubouchi, K. (2004). Identification of fibroin-derived peptides enhancing the proliferation of cultured human skin fibroblasts. *Biomaterials* **25**, 467-472.

**Yamada, H.**, Murata, M., Suzuki, K., and Koizumi, S. (2004). Ultraviolet irradiation increases the sensitivity of cultured human skin cells to cadmium probably through the inhibition of metallothionein gene expression. *Toxicol.Appl.Pharmacol.* **200**, 251-257.

**Yourick, J. J.**, Koenig, M. L., Yourick, D. L., and **Bronaugh, R. L.** (2004). Fate of chemicals in skin after dermal application: does the in vitro skin reservoir affect the

estimate of systemic absorption?  
Toxicol.Appl.Pharmacol. **195**, 309-320.

Zachariae, R., Zachariae, C., Ibsen, H. H., **Mortensen, J. T.**, and Wulf, H. C. (2004). Psychological symptoms and quality of life of dermatology outpatients and hospitalized dermatology patients. Acta Derm.Venereol. **84**, 205-212.

Zhai, H., Fautz, R., Fuchs, A., Bhandarkar, S., and **Maibach, H. I.** (2004). Human scalp irritation compared to that of the arm and back. Contact Dermatitis **51**, 196-200.

Zharov, V. P., Ferguson, S., Eidt, J. F., **Howard, P. C.**, Fink, L. M., and Waner, M. (2004). Infrared imaging of subcutaneous veins. Lasers Surg.Med. **34**, 56-61.